MSG From: IBMPC --YKTVMV To: IT32730 --VIMVMOA 01/29/93 14:53:24á
==========
----- SPACE FORUM appended at 13:54:59 on 93/01/29 GMT (by 10023431 at TOROHON1)
Subject: Medal of Honor
Ref: Append at 15:06:58 on 93/01/27 GMT (by RPREID at HOUVMSCC)

Do not confuse the "Space" Congressional Medal of Honor with the one(s) bestowed upon the military. They are ranked in the same category - ie. Top Ranked, but the criteria for receiving the two, while similar, is different (for obvious reasons).

The Space Congressional Medal of Honor was created quite early in the space program (I believe during the Gemini program - but don't quote me on this). I can't recall the specific wording of the criteria for awarding the medal (have it at home - the wording, that is), but it was intended to be a unique and separate form of recognition from that of awarding a traditional military decoration, which was common during the early years of manned space exploration (President Kennedy awarded the Distinguished Service Cross to astronaut Allan Sheppard in a ceremony honoring his accomplishment, shortly after his return to earth).

Since the first 7 astronauts were drawn from military ranks, the awarding of a military honor (ie. DSC or CMH) was customary. However, when the astronaut classification was expanded (with the second group of 9) to include "scientist" astronauts in addition to "pilot" astronauts, this opened the door to both civilian and military candidates. Hence the need for the creation of a civilian decoration on par with the military DSC or CMH.

Cheers,

Winston - Toronto

ÿ †NO SUBJECT ƒÀ
MSG From: IBMPC --YKTVMV To: IT32730 --VIMVMOA 02/03/93 18:00:46á
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----- SPACE FORUM appended at 16:59:06 on 93/02/03 GMT (by KOHL at HOUVMSCC) --
Subject: Space newsette.

Both of these topics are likely to be plastered all over many news medii, starting a few days ago(I received 3 different FAXs of the Wash. Post article, from my cohorts in the business). All of the subcontractors to McDonnell Douglas Aerospace-Space Station, will be interviewed as a part of this 'review'. IBM-FSC-Houston(DMS) is one such sub. I will not likely contribute any further info, nor should anyone speculate on any of these reviews, unless it comes from the public media, or possibly from IBM Communications(which I see no need for at this point). We(IBM-Houston, DMS project) have received our standard reminder about how to handle any queries from the news media should we get asked. Nuff said, but stay tuned.

> 2. SPACE STATION OVERRUN LARGER THAN EXPECTED - $500 MILLION INCREASE

SEEN, RAISING ALARM (Washington Post, 2/1): News of a new and unexpectedly large cost overrun in the $30 billion space station program has set off alarms in NASA and on Capitol Hill, according to informed sources. Space station officials, in California to meet with officials of contractor McDonnell Douglas, confirmed on Friday that the program will face costs of at least $500 million more than anticipated last October, if nothing is done. Electrical flight equipment and computer software are mentioned as part of the problem. Page A3.

> 3. GOLDIN RAISES POSSIBILITY OF ANOTHER STATION RESTRUCTURING (Aerospace Daily, 2/2): NASA Administrator Daniel S. Goldin Monday raised the possibility of another space station restructuring in the face of potential overruns on the Work Package 2 portion of the international orbiting lab, suggesting the Clinton Administration may want to look again at options to keep the project on schedule and within budget. There are no specific options in mind, a NASA spokesman said. Page 175.

Ron Kohl, Space Station Sys. Eng. FSC Houston

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NO SUBJECT ƒÙ
MSG From: IBMPC --YKTVMV To: IT32730 --VIMVMOA 02/08/93 23:33:46á
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----- SPACE FORUM appended at 22:12:52 on 93/02/08 GMT (by KOHL at HOUVMSCC) --
Subject: Space news(live from Huntsville, AL)

Greetings, from our IBM-FSC office in Huntsville, AL. I'm here to engage a variety of our MSFC PL folks, along with some additional IBMers, someone(s) from the SSCC(from whence our space cadet R. Mergler emergeth) and some folks from SSFP Level II(SSF HQ) as opposed to SSFP Level I (NASA - HQ; who may also participate, ya just never know).
But enough of that BR stuff. Here now, the news!

> COLUMBIA AT LAUNCH PAD 39B
Columbia, attached to the STS-55 external tank and solid rocket boosters, has been rolled to launch pad 39B. The orbiter and its Spacelab long module payload will undergo final testing over the next weeks in preparation for the late-February mission.

> CLINTON KEEPS STATION
President Clinton last Friday declared he will fund both the Space Station Freedom and Supercollider projects in his new budget. He did not rule out deep cuts in either of the projects, however.

Alabama Senator Howell Heflin, when asked about any cuts in the Station program said,

"In fact, on page 153 of their campaign book 'Putting People First,' they came out in strong support of completing the Space Station. I have reminded the White House of the strong campaign promises made by President Clinton and Vice President Gore. We are doing everything we can to see that the space station is included in the president's budget and that he will strongly support his program."

When asked about any proposed funding cuts of Freedom, NASA Administrator Daniel Goldin told Aviation Week and Space Technology that it,

"...may be appropriate to look again at program restructuring options we may have previously considered."

> WILL SALLY RIDE?

According to numerous sources, the Clinton Administration is seriously considering former-astronaut Sally Ride as a replacement for present NASA Administrator Daniel Goldin. Goldin has been criticized by unnamed top NASA managers for his management style and lack of accomplishments during the year he has headed the space agency.

Goldin recently came under fire from NASA managers for the number of special review teams formed to study the Hubble Space Telescope repair, scheduled for later this year. Goldin recently created another panel to review the results of the other review teams. When asked about this, Goldin told "Space News",

"There's always a temptation to say, 'oh my God, here comes another review.' But it would be unconscionable for me, as the NASA Administrator, not to have an overall perspective on the situation."

Goldin has also been criticized for his harsh style and lack of communications with his staff. One unnamed NASA official told "Space News",

"He talks about empowerment, but people with responsibility has been cut out of major activities. Everyone worries that (NASA) has been turned into an accident waiting to happen. (Goldin) has a volatility of temper, and there is a complete lack of communications."

Goldin also has his supporters, including key members of Congress and reportedly some members of the astronaut corps. Lori Garver, executive director of the National Space Society, said recently,

"(NASA insiders) have fought (Goldin) at every turn. He can't personally deal with individuals on a daily basis. He is really hard to work for."

Ride, since leaving NASA in 1987, has been working for a California "think tank" and recently as an advisor to the Clinton transition team. Rumors of her becoming NASA Administrator have been circulating since the election. Recently, those rumors have intensified.

Ride has flown on two Space Shuttle flights. Ride was the first United States woman astronaut in 1983 and made her second flight in 1984. While in the astronaut office, Ride was considered an expert with the Shuttle's Remote Manipulator System.

> ANOTHER NASA TO MIR MISSION

NASA is considering adding a flyby of Space Station Mir to next

year's Shuttle manifest, according to the weekly publication "Space News". The flight, tentatively planned for STS-63 in May, 1994, would include a fly-around of Mir, but no docking.

The docking mission and crew exchange is still planned for 1995 using the orbiter Atlantis. Atlantis is presently in California undergoing modifications for the mission. These changes include the addition of a second airlock which will be attached to a Russian docking adapter. The mission to Mir will also carry a Spacelab pressurized long module.

While the Russians have not yet been formally asked about the 1994 flyby mission, NASA officials are optimistic of receiving approval from the Russian Space Agency. RSA is in charge of civilian Russian space operations.

> MARS IS CLOSER

The Mars Observer spacecraft is now closer to Mars than Earth. The spacecraft is now 28,478,000 miles from Mars. A second trajectory correction maneuver is planned February 8th.

The spacecraft is said to be in good health with the possible exception of the Standard Control Processor 2. During a recent downlink of the computer's memory showed some anomalies in the COMPOOL section of the memory. The cause of this is under investigation.

> MAGELLAN IMAX

Film makers with the IMAX Corporation were recently at the Jet Propulsion Laboratory. An IMAX segment was filmed re-creating the retrieval and display of the first set of Magellan data. The segment will be used in a later IMAX large-screen film.

Magellan has completed 6,788 orbits of Venus. The spacecraft's hydrazine tank was recently re-pressurized to increase the spacecraft's thrusters performance. Gravity collection activities are continuing as the Magellan project heads into its final months.

> ANOTHER GPS LAUNCHED

The eighteen Block II Global Positioning Satellite was launched last Tuesday. The launch at 8:55PM (Central) apparently occurred without any problems.

Each of the GPS satellites cost $65 million. This was the 40th consecutive flight for the Delta launch vehicle. This also concluded McDonnell Douglas' initial launch contract with the United States Air Force for the Delta 2 booster. A follow-on contract calls for another ten launches.

> MEDAL FOR RODDENBERRY

NASA's Distinguished Public Service Medal was presented to posthumously to Star Trek creator Gene Roddenberry, on January 30th. In a ceremony at the Smithsonian's National Air and Space Museum, NASA Administrator Daniel Goldin read a accompanying citation to Roddenberry's widow, Majel Barrett Roddenberry. The citation said,

"For distinguished service to the Nation and the human race in presenting the exploration of space as an exciting frontier and the hope for the future."

Ron Kohl, Space Station Sys. Eng. FSC Houston

ÿ < mNO SUBJECT ƒÙ
MSG From: IBMPC --YKTVMV To: IT32730 --VIMVMOA 02/25/93 19:34:41á
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----- SPACE FORUM appended at 18:34:05 on 93/02/25 GMT (by HANKINS at PKEDVM7)
Subject: goodbye

Today's my last day with IBM. Keep on space truckin'. Bye.

Dan Hankins
Olson's Observation: It's tough to juggle in the middle of an avalanche.

ÿ \ NO SUBJECT
MSG From: IBMPC --YKTVMV To: IT32730 --VIMVMOA 02/25/93 20:05:39á
==========
----- SPACE FORUM appended at 19:07:41 on 93/02/25 GMT (by MENGEL at STLVM4) --
Subject: EDUCATION
Ref: Append at 18:05:25 on 93/02/25 GMT (by HANTHORN at RALVM0)

Thanks for all the answers on the writing thing... I was also thinking about more activity in schools, town meetings, etc. Easier said than done but then how many J. Q. Public types have ever really talked to a real live engineer/programmer/tech-types vs. hyped-up media hysterics?

BTW - you *DO* take those letters out of that container *BEFORE* you mail it, don't you?

Tom Mengel (AdStar AIX Device support - San Jose CA)

ÿ … NO SUBJECT
MSG From: IBMPC --YKTVMV To: IT32730 --VIMVMOA 02/26/93 01:01:37á
==========
----- SPACE FORUM appended at 00:00:20 on 93/02/26 GMT (by RMERGLER at HOUVMSCC)
Subject: EDUCATION
Ref: Append at 19:07:41 on 93/02/25 GMT (by MENGEL at STLVM4)
I know of several engineer/tech types who visit schools for show and tell discussions but it happens primarily in the vicinity of NASA centers for obvious reasons. I don't know of anyone who either one their own or as part of a sponsored effort travels to various parts of the country to talk to everyperson-meetings about what space exploration means to YOU. High-level NASA people do such things but only to places like US Chamber of Commerce or AIAA, not where Jane Public would be found.

The barrel is about two Ponys big, Ron, and we clean it out every week by filling with Stroh's and emptying into steins. Then we have to think of what to do with the steins... 8-})}
We don't send the barrel, Tom; some things are TOO precious.

Ralph Mergler ("Howard Hughes To Lead Station Redesign. Film at 11.")

ÿ ð ´NO SUBJECT
MSG From: IBMPC   --YKTVMV   To: IT32730 --VIMVMOA   02/26/93 03:32:22á
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----- SPACE FORUM appended at 02:34:05 on 93/02/26 GMT (by PFC at KGNVMZ) -----
Subject: EDUCATION
Ref: Append at 00:00:20 on 93/02/26 GMT (by RMERGLER at HOUVMSCC)

As someone who wanted to become a space cowboy as a kid, my take on why
NASA and the space program don't capture the hearts of folks anymore
is that we don't impress easily anymore.

The advances in technology now to what will be in 10 years from now
will not surprise us like they did to people in the '50's & 60's.
I doubt you will ever see something like the way we were captivated
by the Mecury and Apollo programs....because at that time we trying
to find our identity as a people and country. I doubt my kids will
find something like July 20, 1969 to look back with in wonder.

But you can't blame NASA's PR efforts. Back then, they didn't want
TV cameras around (probably still don't). Now they have the two
space centers for tourists, you have Space Camps (boy, where were
these when I was a kid!!!), and best of all the National Air & Space
Museum....all of which NASA plays a big part in. So not everyone gets
fired up for a shuttle launch, NASA's a lot more open kimono these days.

Like there will never be another Babe Ruth, there's only one Apollo 11
I'm afraid.

Pat Caffrey AIX/ESA Performance, ES/KGN

ÿ ÒNO SUBJECT
MSG From: IBMPC   --YKTVMV   To: IT32730 --VIMVMOA   03/03/93 15:13:06á
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----- SPACE FORUM appended at 14:11:25 on 93/03/03 GMT (by JBESSANT at
HOUVMSCC)
Subject: GD Says Faulty Engine Valve Caused Galaxy 1R Launch Failure
Ref: Satellite Week February 8, 1993

      General Dynamics (GD) said faulty engine valve caused failed
flight of Hughes' Galaxy 1R satellite in Aug., when Atlas Centaur
launch vehicle was destroyed -- along with satellite -- causing total
losses of $250 million. GD attributed failure to Pratt & Whitney
engine, as well as failure in April 1991. Engineers first had
suspected fuel-line debris, but after Aug. explosion, GD put all
launches on hold (SW Aug 31 p1). Five-month investigation by all
manufacturers, space analysts and engineers involved concluded that
valve in one of upper-stage Centaur rocket engines failed to close
before liftoff, allowing air into unit during ascent. Air solidified
in liquid hydrogen fuel pump, preventing engine turbine from
rotating. GD said extra valves are being added to Centaur engines as
safeguard.
      GD said it will add solenoid-actuated valve to provide

redundant seal for check valves. They also will undergo additional "confidence testing," company said. Ground pre-chill temperature is being increased to above freezing point of nitrogen to assure that air or nitrogen from any source won't result in frozen engine, it said.

Launch failure has been of prime concern to space insurance industry and satellite manufacturers, operators, users. Satellite operators worried that failure would push insurance rates up -- which hasn't occurred yet. "The RL-10 is a successful system, and it has been for years," said Daniel Cassidy, Washington-based space insurance consultant. Centaur booster's main application has been for satellite launches, both commercial and specially tailored secret Defense Dept. flights. At one time, NASA had contracted with GD to build Centaur RL-10 version for space shuttle, but project was canceled in favor of alternative launch system.

RL-10 unit hadn't failed since 1985, just after it was upgraded in size, when it suffered loss of propellant. "The Atlas Centaur is in an important part of the arsenal of available launch capability," Cassidy said. "There aren't any others in that class (in size and throw weight), except for the Ariane 5 (under development). The Chinese and Russians have that capability, but the Atlas Centaur is an important vehicle and a certain amount of insurance is already on this rocket." N.Y.-based Marsh & McClennon has signed as broker for GD's next Atlas launch, in March, of Navy's Hughes-built UHF follow-on satellite (for fleet communications). DoD flight is categorized as commercial launch because of way contract is written.

John C. Bessant, Houston, Texas, USA

ÿ NO SUBJECT
MSG From: IBMPC   --YKTVMV   To: IT32730 --VIMVMOA   03/03/93 13:58:12
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----- SPACE FORUM appended at 13:40:23 on 93/02/26 GMT (by CTOMLINS at BTVVMOFS)
..... SPACE FORUM modified at 13:00:18 on 93/03/03 GMT (by CTOMLINS at BTVVMOFS)
Subject: EDUCATION
Ref: Append at 02:34:05 on 93/02/26 GMT (by PFC at KGNVMZ)

Perhaps all the contracting companies could form an advertising coop. (like the %milk industry does) With this they could advertise all the everyday things that are from the space program. (%velcro,teflon,medical advances) Advertising could be placed on all the techie shows. (Quantum leap, Star Trek) Tie this in to engineers week, & award prizes for scholastic contests. (Olympics of the Mind) I'd think all lot of good ideas could come from a little brainstorming. In the current envirornment every issue needs a lobby.
|This forum is better than an Encyclopedia. Thanks to some kind Folks
|I'm now aware that velcro was exploited by the space program not
|invented by it. The Scholastic contest is (Odessey of the Mind)
|
Chet Tomlinson TP Burlington P*GRTG15a

ÿß NO SUBJECT

MSG From: IBMPC --YKTVMV To: IT32730 --VIMVMOA 03/04/93 16:12:57á
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----- SPACE FORUM appended at 15:11:33 on 93/03/04 GMT (by JBESSANT at HOUVMSCC)
Subject: SSF NEWSCLIP Items

SPACE STATION OFFICIALS QUERIED ON OVERRUNS (Washington Post): NASA paraded its dirty linen before Congress on Tuesday in trying to trace the paths that led to a potential $1 billion overrun. Top space station mangers provided details, but their testimony was undercut by NASA administrator Daniel S. Goldin who indicated the officials might not be telling the truth. NASA managers said among the causes of the cost growth -- some $500 million -- was that McDonnell Douglas and its subcontractor IBM overestimated the writing and delivery of the station's enormous requirement for a million-plus lines of custom-tailored software code. Page A10.

WARNER PROPOSES KILLING SPACE STATION PROJECT (Washington Times): Sen. John Warner is sponsoring legislation to kill NASA's manned space station, angering Northern Virginia lawmakers who fought previous bids to shut down the $30 billion project that provides hundereds of high-paying jobs. Calling it "wasteful and unnecessary" the Virginia Republican urged President Clinton to kill the project. Page B1.

John C. Bessant, Houston, Texas, USA

ÿ: NO SUBJECT
MSG From: IBMPC --YKTVMV To: IT32730 --VIMVMOA 03/04/93 16:19:34á
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----- SPACE FORUM appended at 15:17:49 on 93/03/04 GMT (by JBESSANT at HOUVMSCC)
Subject: News

Well I'm not Brother Kohl and I don't have the finely tuned and sophisticated wit of himself (nor the liver function), but since he's been real quiet for a while and the following is very interesting,.....here's the nuz!

SHEA STATION
NASA Administrator Daniel Goldin has appointed Dr. Joseph F. Shea to head the effort to redesign Space Station Freedom. Shea will be directly responsible for leading NASA's efforts to cut costs on the projected-$39.3 Billion facility.

In a prepared statement, Goldin said,

"I have asked Joe Shea to come back to NASA to head the redesign effort. He has recently been serving as the acting chair of the NASA Advisory Council, and brings a wealth of knowledge and experience to this critical task."

"The NASA/contractor Space Station team also will be called upon

and Joe (Shea) will work with Dick Kohrs to assure access to the insight to ongoing program activities. This team will truly reflect the cultural diversity of the agency and the country."

Concerns over cost overruns for the present design of Freedom continue. Goldin recently sent a letter to the chairman of the House Subcommittee on Space pledging to perform another independent review of costs and schedules by mid-April. According to the Houston Chronicle, the recent overruns in the JSC portion of the contract were the result of "the contractor and its subcontractors had underestimated labor requirements and the costs for developing computer software and an electrical control system."

LAUNCH WAS SCHEDULED FOR MARCH 14TH

Technicians are continuing to cleanup hydraulic fluid in Columbia's aft engine compartment today. The fluid gushed out after a hydraulic line broke during the a flight readiness test in preparation for the STS-55 mission. The FRT does not use propellants, but instead tests the control systems of the main propulsion system and the orbiter's flight control system.

The launch of Columbia had been planned for March 14th. While Columbia could have been ready for launch on March 9th, this was not possible due to a Atlas launch reportedly planned for March 11th. With this constraint, NASA built some "slack" into the launch schedule. This extra time will probably be used up cleaning up and replacing the failed hydraulic line. Despite the contingency time, a launch delay may still be required.

DISCOVERY IN THE VAB

The orbiter Discovery was moved to the Vehicle Assembly Building late yesterday. Discovery was moved without its main engines due to questions concerning the high pressure oxidizer turbopumps. The pumps and the orbiter's main engines were removed to allow inspections of seals within the SSMEs.

During Discovery's extended stay in the VAB, new main engines will be installed. Discovery's next mission, STS-56, remains scheduled for the first week in April.

ENDEAVOUR GETS SPACEHAB

The commercially-produced SpaceHab module has been installed into Endeavour's cargo bay. The module will double the amount of middeck locker space for the crew and experiments. The module, while smaller than the Spacelab pressurized compartment, uses the same tunnel to connect it to the orbiter's middeck.

The first launch of the SpaceHab module is planned for the late-April STS-57 mission. Besides working with the new module, astronauts will also retrieve the European Eureca-1 spacecraft during the eight day flight.

FIRST RESULTS FROM TOPEX-POSEIDON

NASA scientists at the Jet Propulsion Laboratory recently held a

press conference to discuss the early results from the Topex-Poseidon oceanography satellite. The joint European-United States mission has found evidence that the El Nino global weather disturbance is intensifying.

The findings have allowed scientists to predict that next winter will be cold and wet for the western United States. If El Nino intensifies, cold weather will likely continue in the eastern U.S., while the Southern Hemisphere will receive unusually warm and dry weather.

JPL ELIMINATES JOBS

The Jet Propulsion Laboratory recently announced plans to eliminate 1,000 of its 7,500 person work force. According to the NASA-affiliated laboratory, the cuts are due to "the realities of the federal budget".

JPL Director Edward Stone in a prepared statement said,

"As a federally funded laboratory and a national resource of considerable competence, we have a responsibility to mobilize our staff in such a way that we can accommodate a high volume of work with a relatively lean staff size."

Some layoffs are expected at the Caltech facility which has controlled most interplanetary missions, from the earliest Mariner spacecraft to the Galileo Jupiter explorer. The cuts will occur over a five year period.

John C. Bessant, Houston, Texas, USA

ÿp ?NO SUBJECT
MSG From: IBMPC --YKTVMV To: IT32730 --VIMVMOA 03/04/93 20:23:12á
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----- SPACE FORUM appended at 19:16:31 on 93/03/04 GMT (by KOHL at HOUVMSCC) --
Subject: Space news.

Even though this blurb isn't entirely Space-related, it does identify my 'parent company'. thought y'all would be interested.

3. IBM FEDERAL'S UP YEAR SPURS SPINOFF TALK (Washington Technology, 2/25): A baby blue may be on the way. In a possible prelude to spinning off its Federal Systems Co. as a separate, publicly traded firm, Big Blue released a draft of its annual report that included figures for its Federal Systems Co., or FSC, unit. The draft said the government-focused systems integration arm of the company boosted revenues 10 percent to $2.19 billion in 1992 and earnings 54 percent to $71 million.

Ron Kohl, Space Station Sys. Eng. FSC Houston

ÿ Ó ´NO SUBJECT
§MSG From: IBMPC --YKTVMV To: IT32730 --VIMVMOA 03/12/93 22:48:44á

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----- SPACE FORUM appended at 21:08:56 on 93/03/12 GMT (by KOHL at HOUVMSCC) --
Subject: Space News.

Greetings on a frosty, wet Friday afternoon. I'm actually here, in Houston, but I did check with my friends in Huntsville, AL and they are getting 5-8 inches of snow by tonite. All of which is only relevant due to the fact that I skied Bama, last Saturday, while waiting to travel to Wash. D.C. And now for the 'other' news! ;-)

> WHO'S ON FIRST

NASA officials have not yet decided whether to launch STS-55 or STS-56 first. The recent delays in the German STS-55 mission has led to conflicts in the Kennedy Space Center launch schedule for STS-56.

Discovery, on mission STS-56, will launch the second Atmospheric Laboratory for Applications and Science. Atlas-2 requires an early spring launch to complete many of the planned scientific objectives. Flying the STS-55 Spacelab-D2 mission first may put the Atlas-2 science objectives at risk, according to NASA sources.

Presently NASA managers are evaluating whether to fly STS-55 at the end of March, followed by STS-56 mission three weeks later. An alternate plan would involve launching STS-56 in early April, followed by the STS-55 mission later in the month.

The recent delays in STS-55 were caused by a rupture in a hydraulic flex line in Columbia's aft compartment. When the line broke during a non-propulsive flight readiness test, hydraulic fluid was sprayed throughout the Columbia's aft compartment and main engines.

While technicians cleaned-up the hydraulic fluid, engineers determined the cause of the rupture. The problem was traced to a manufacturing defect when the hoses were assembled in 1977. During that time, a new kind of buffing wheel was used to remove insulation. The process was discarded when it was found that the wheel wore down the stainless steel wire beneath the insulation.

Three of Columbia's other hydraulic flex hoses have also been replaced. During a second flight readiness test yesterday, all systems performed as expected. At launch pad 39A, an interface verification test of the new orbiter refrigerator/freezer unit is planned.

Discovery is presently in the Vehicle Assembly Building. The orbiter has been attached to the STS-56 external tank and solid rocket boosters. Work is progressing slightly ahead of schedule towards rollout of Discovery to launch pad 39B. Rollout is now planned for this Saturday.

A decision on launch dates for both STS-55 and STS-56 will be made before the end of the week, according to NASA.

> MAE JEMISON RETIRES

Dr. Mae Jemison has announced her resignation from both NASA and the astronaut corps. Jemison resigned as of March 8th to pursue "teaching, mentoring, health care issues, and increasing participation in science and technology of those who have traditionally been left out."

In a prepared statement, Jemison went on to say,

"I leave with the honor of having been the first woman of color in space, and with the appreciation of NASA -- the organization that gave me the opportunity to make one of my dreams possible. The experiences of the NASA astronaut program have opened many new doors, and provided a way to put my hard work and training to use for the good of others."

Jemison flew on the recent STS-47 Japanese Spacelab mission. Jemison has a bachelor of science degree in chemical engineering and a doctorate degree in medicine. The NASA announcement did not mention any specifics on Jemison's future plans.

> EXTERNAL TANK MANAGEMENT TO MOVE TO HOUSTON

NASA has announced plans to move the management of the Space Shuttle's external tank to the Johnson Space Center. The move has been made to consolidate the Shuttle's engineering work at JSC, while the operations work is moved to the Kennedy Space Center.

The number of positions involved in the move will not be known until early April, according to NASA. It is expected that some of the people presently working on the external tank at the Marshall Space Flight Center will be re-assigned, rather than move to Houston.

> ATLAS-CENTAUR READIED FOR LAUNCH

An Atlas-Centaur is undergoing final checkout at Cape Canaveral for the launch of the Navy's Ultra High Frequency Follow-on satellite. The UHF Follow-On program uses Hughes HS 601 model spacecraft. This will be the first Atlas-Centaur launch since the failure of the Centaur upper stage last year.

General Dynamics, maker of the Atlas-Centaur, has recently postponed the flight to complete final testing of the Centaur modifications. The changes include extra valves to prevent cold air from condensing around parts of the Centaur's cryogenic engines. Launch is expected before the end of March.

Ron Kohl, Space Station Sys. Eng. FSC Houston

ÿÿ ÝNO SUBJECT
§MSG From: IBMPC --YKTVMV To: IT32730 --VIMVMOA 03/15/93 13:40:24á
==========
----- SPACE FORUM appended at 12:39:16 on 93/03/15 GMT (by KOHL at HOUVMSCC) --
Subject: Space News.

Well, it must have been a slow weekend when my Friday afternoon edition is immediately followed by my Monday a.m. 'rise and shine' special. In any case, we continue to monitor(to the best of our ability)

any/all 'redesign/restructure' activities on Freedom. But we also continue to address/attack the existing technical/programmatic issues with today's Freedom. At this point, there are still many who believe 'reusing' portions of today's Freedom design/development may be the way to go, and those of us on today's version of Freedom intend to be ready for the possibility. In addition to 'ideas' re/redesign we are also looking at 'ideas' that will shave/slice/emmaciate today's costs on today's Freedom. More later, as always. Oh yeah, the 'other' news. ;-)

> NEWEST STS-55 LAUNCH DATE SET

NASA officials have selected March 21st for the launch of Columbia on the STS-55 mission. The new date was selected after General Dynamics agreed to move the launch date of their Atlas-Centaur Navy launch to March 25th. Reportedly, NASA has moved the STS-56 launch date to the second week of April in the latest schedule.

The rollout of Discovery for the STS-56 mission has been delayed due to the recent bad weather in Florida. NASA has not said if the weather would further delay either STS-55 or STS-56.

> SLIMMER FREEDOM

NASA Administrator Daniel Goldin help a press conference Thursday to discuss the plans for a cheaper, smaller space station program. While Goldin said he has called for a 50% reduction in costs, he still expects all the original science objective to be met with the redesigned Freedom.

At a Wednesday meeting with the American Astronautical Society, Goldin said,

"The (space) station program represents a great deal of dedication and hard work by our people...but in the end it is simply too expensive.... NASA employees, contractors and researchers must work together for the nation's goals rather than eating off of everyone else's plate."

"We cannot continue to drag along with a 20-year program. We must be lean and quick and vital and do things wisely and efficiently. It is no longer acceptable to launch successfully but have cost overruns along the way."

During the press conference, Goldin said that a new design for Freedom will be selected within 90 days. A team of 35 NASA engineers and 10 representatives from foreign partners will participate in the redesign. Three designs will be pursued, with the final one to be selected in June.

While the Station re-design team headed by Dr. Joseph Shea had only met once, Goldin went on to say that the new Freedom will only require eight to nine Space Shuttle flights for assembly instead of the previously planned 17.

Whichever design is chosen will be completely developed by the end of fiscal year 1998, according to Goldin. Goldin also said that long

duration orbiter Spacelab flights and flights to Space Station Mir would be considered as a method to supplement the smaller station.

> NASA COSMONAUTS MEET MEDIA

Last week, the two Russian cosmonauts training for the STS-60 mission met with the media. Sergei Krikalev and Vladamir Titov discussed their feelings as they get closer to the planned November launch date.

Krikalev, who has spent 463 days in space, told journalists,

"I think every pilot who flies on some kind of plane wants to fly on another kind of plane. After two long-duration missions on the Mir station ... it is a new experience. It's a good experience, and I'm happy that I have a chance for training."

Only one of the two will be selected for the STS-60 mission, with the other cosmonaut serving as a backup. Reportedly, NASA will offer the backup cosmonaut a chance to fly on the planned STS-63 Mir flyby mission.

STS-62 and STS-59 CREWS

John Casper has been selected to command the STS-62 mission scheduled for launch in February, 1994. NASA also announced the assignment of Sidney Gutierrez to command the STS-59 mission planned for April, 1994.

Also selected for the STS-62 flight, which will fly the second Office of Space and Terrestrial Applications payload during an Extended Duration Mission, are Andrew Allen, Pierre Thuot, Charles "Sam" Gemar, and Marsha Ivins. Allen will serve as pilot during the mission, while the remaining crew was picked as mission specialists.

The STS-59 crew will work with the Shuttle Radar Laboratory. Gutierrez will be accompanied by pilot Kevin Chilton, and mission specialists Jay Apt, Michael "Rich" Clifford, Linda Godwin, and Thomas Jones.

> GALILEO JAM

The Galileo high gain antenna remains partially deployed despite the spin-up of the spacecraft to 10.5 revolutions per minute. This is almost triple the normal Galileo spin rate of 3.15 RPMs. After another motor "hammering", engineers determined that none of the antenna's three stuck ribs moved during the spin-up.

However, Jet Propulsion Laboratory engineers will over the next week attempt to chart the transmission pattern of the partially deployed antenna. This is not expected to change any opinions on the usefulness of the umbrella-shaped dish.

Galileo scientists and engineers will proceed with a plan to use the low gain antenna for all transmissions from the spacecraft. This will reduce the planned number of images returned from Galileo to 4,000 from the originally targeted 50,000 images. However, over 70

percent of the planned scientific objectives can still be achieved according to Jet Propulsion Laboratory project officials.

A course correction maneuver was made on Tuesday to put Galileo on the proper course for a flyby of Asteroid Ida on August 28th. This will be the second asteroid encountered by Galileo. The first was with Asteroid Gaspra in 1991.

> LIFE IN THE FAST LANE

A star which is moving at 500 miles per second relative to the Milky Way Galaxy has been discovered. The star is moving so fast that it creates a guitar-shaped wake through the interstellar medium. Presently the pulsating star is 6,000 light years from Earth.

Astronomers believe that the star is at the tip of guitar's neck. The star is actually a pulsar, which is the remnant of a collapsed star larger than the Sun. Scientists believe that the explosion which created the pulsar was slightly off-center sending the pulsar on its fast journey.

> NEWEST VENUS MAP

The final Magellan map of the topography of Venus will be unveiled at the 24th Lunar and Planetary Science Conference by project scientists. The five days of meetings, beginning on March 15th, will include presentations on various surface properties of the planet as well the larger scale features.

Magellan has now completed 7,889 orbits of Venus and has radar mapped over 98 percent of the planet. 1,000 of the orbits have been used to collect gravity mapping information.

> NASA'S SR-71

The first SR-71 "Blackbird" NASA science flight took place on March 9th. The once-secret plane carried a Jet Propulsion Laboratory payload. The SR-71 climbed to an altitude of 85,000 feet while traveling at Mach 3. An ultraviolet camera was used to take images of selected astronomical targets.

> ARNOLD IS BACK

Columbia Pictures has announced their intent to advertise on a Conestoga rocket, scheduled for launch in May. The new Arnold Schwarzenegger movie "Last Action Hero" will be the subject of the promotion which will appear on the main part of the rocket.

This will be the first launch in NASA's Commercial Experiment Transporter program. Eleven microgravity experiments will be onboard the rocket as it leaves the Wallops Flight Facility in May.

Ron Kohl, Space Station Sys. Eng. FSC Houston

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§MSG From: IBMPC --YKTVMV To: IT32730 --VIMVMOA 03/15/93 20:22:33á
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----- SPACE FORUM appended at 19:21:11 on 93/03/15 GMT (by JBESSANT at

HOUVMSCC)
Subject: Space Related Items from NEWSCLIP

REDESIGN MAY PUT STATION PARTNERSHIP ON SHAKY GROUND (Space News, 3/15-21): U.S. partners in the space station effort -- Europe, Japan and Canada -- last week rejected NASA's move to start a new program largely from scratch, and demanded instead that the international team begin by considering revisions to the current plan. Page 1.

STATION REDESIGN PANEL TO CUT COST, SCHEDULE (Space News, 3/15-21): A NASA team last week kicked off a radical redesign of the space station with White House orders to reduce the cost by more than half and advance the construction schedule. The guidelines set out by NASA Administrator Daniel Goldin call for a space station that can be used by 1997, as currently planned, and operate for at least a decade, rather than 30 years. Page 3.

GOLDIN SHIFTS MANAGERS AS BAN ON CHANGES LIFTS (Space News, 3/15-21): NASA Administrator Daniel Goldin last week executed the top management changes he has been trying to make since before the election. The changes announced March 5 end a five-month standoff over control of NASA's science program between Goldin and Lennard Fisk, who has served as associate administrator for the space science and applications office since 1987. Page 3.

IMAGE CHANGE NEEDED FOR NASA TO GAIN SUPPORT (Space News, 3/15-21): Change or become irrelevant was the harsh warning to NASA last week from White House officials and members of Congress. Whether the U.S. space program can succeed in that transition during the stormy months ahead is provoking much soul-searching among agency supporters. Page 5.

John C. Bessant, Houston, Texas, USA

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----- SPACE FORUM appended at 15:06:59 on 93/03/11 GMT (by JBESSANT at HOUVMSCC)
Subject: Communications Explosion
Ref: Flight International January 27, 1993 p41,
Reed Business Publishing, Ltd.

(Editor's Note: Long append, but well done.)

By the year 2000 it may be possible to telephone with a cellular handset from any point in the world. Tim Furniss reviews the competitive satellite projects which will make global service possible.

By the year 2000, personal mobile communications are likely to

be a $100 billion industry, serving over 400 million users of cellular, paging, private mobile and personal-communications networks all over the world. Satellites will play a major role in this projected communications explosion, according to international satellite organisation Inmarsat.

Today's 15 million cellular telephone users are concentrated in highly populated areas of the world - rural and isolated regions are ill-served by the network infrastructure. Global personal satellite communications will be used to extend the reach of these cellular services so that anyone will be able to remain in contact no matter where in the world they are. By 2005, there could be more than a million users of these satellite systems.

A total of 22,000 users on land, sea and in the air are already benefiting from the international Inmarsat organisation's global mobile satellite-services, using portable terminals as small as the 20kg Inmarsat A.

Inmarsat has introduced the satchel-sized Inmarsat C terminal, for portable data store-and-forward services, and the Inmarsat M, a briefcase-sized telephone. Satellite-paging receivers, the size of portable stereos, are scheduled to be introduced in 1994. "These innovations are all important stepping stones towards Inmarsat's Project 21 final goal of Inmarsat P, personal satellite communications worldwide," says Pat McDougal, Inmarsat's Project 21 strategic planner.

Further miniaturisation and technological enhancements will make the next step possible and economically feasible. An even more compact version of the Inmarsat M terminal, which will have ten times the power and six times the capacity of Inmarsat 2s, could be used in conjunction with spot-beam Inmarsat 3 satellites in 1994/5. The 1992 World Administrative Radio Conference paved the way, with the allocation of frequencies, towards global personal satellite services.

Many satellite systems designed to support hand-held communications have already been proposed, including the Inmarsat P and the industry's legend before its own lifetime, the Iridium, from US company Motorola. This proposed Lockheed-built system of 66 satellites (reduced from the original 77), which weigh 700kg each, would be flown in 11 constellations of six craft each in circular 800km-altitude polarorbits.

The US Federal Communications Commission (FCC) has granted Motorola an experimental licence to build and launch five satellites by 1995, to prove the technology, but this does not guarantee a full FCC operating licence. A development cost of $3.75 billion is estimated and Motorola and Lockheed are seeking international partners. Despite the publicity, the Iridium's future is by no means certain. Lockheed's recent tie-up with the Russians on the Proton launcher may provide an inexpensive launch system, but the project will still require massive investment.

There are four other proposed US systems, Big LEOs (low-Earth orbit satellites) which, like the Iridium, would have ultimately global services. These came about as reactions to the Iridium, which caught industry on the hop. Development company Ellipsat's Ellipso 24-satellite fleet would fly in highly elliptical Molniya-type orbits, inclined at 63. The system is projected to cost $450 million

and the FCC has awarded a licence to launch four demonstrators.

Loral/Qualcomm's Globalstar would involve, initially, 24 satellites in 1,200km, circular 53-inclination orbits. The system would cost $1.2 billion, but the FCC has not yet awarded an experimental licence. Thirteen TRW Odessey satellites would fly in 10,200km, circular, 55-inclination orbits. Primarily a military space company, TRW is seeking international partners for the $1.3 billion project and has FCC approval to test satellites. There would be 48 Aries satellites, operated by development company Constellation, flying 1,000km polar orbits. The system would cost $500 million and the FCC has awarded a licence to test two satellites.

The Inmarsat Council has given the go-ahead for further work to resolve technical, operational, market, investment and financial issues to enable investors to make a decision by July 1993 on whether to proceed with the Inmarsat P. Tiger teams will concentrate especially on time-delay, service-availability and system-refinement issues. Inmarsat signatories leading the efforts are Comsat (USA), British Telecom, France Telecom, KDD (Japan), Australia Telecom, Norwegian Telecom, Vidash Sanchar Nigam (India), OTE (Greece), Telespazio (Italy) and others.

Meeting the need for low-cost, lightweight terminals providing high-quality, low-cost services requires extensive planning and development in terminal design and specification; an advanced satellite system, to provide adequate power and coverage; and a sophisticated, worldwide, network infrastructure.

The Inmarsat P terminal will provide duplex voice, facsimile, paging and location data services. It will weigh about 0.5kg and have a target volume of 3m3, excluding the extendible antenna. Power output will be less than 0.5W, using a rechargeable clip-on battery. The terminals, with a digital port for external services, should cost less than $1,500 in full production volume.

The network design is critical to the success of Inmarsat P. The terminal is not like a dish and will not need to be pointed in the direction of a satellite. It will normally be used to communicate via the satellite system to worldwide Earth stations and, through them, to the public switched communications networks. Services will be non-discriminatory and open to all users, even in countries which are not members of Inmarsat, subject to domestic regulations.

UNKNOWN FACTORS

There are still several unknowns, including inside-building penetration. Business users may have to stand by an office window or even go outside to gain a clear signal. There is strong evidence in some marketing studies that the business community (and Europe as a whole) does not want or need such a service from space. The true market cannot be perceived yet and, at this stage, it may be a gamble.

Inmarsat believes that a variety of satellite and orbit configurations have the capacity to meet Inmarsat P market needs: one is an advanced, enhanced geostationary-orbit (GEO) system, with very powerful satellites equipped with larger antennae than those of the

Inmarsat 3 system; the LEO systems are a second option; and a third alternative is the intermediate circular-orbit (ICO) system. A combination of the GEO and non GEO constellations, operating with inter satellite links, has been proposed as a consideration for other potential operators, not including Inmarsat.

"Each option has its own technical and operational characteristics, advantages and limitations, and capital and operational costs structures," says McDougal. Although the Iridium and other Big LEO systems have already been committed to the LEO or ICO satellites, Inmarsat believes that an "...exhaustive evaluation of available technology and options is necessary" to arrive at the best possible configuration.

Lockheed claims that, to carry an Iridium-class service, a GEO satellite would need an antenna 33m in diameter and a power of 10kW. A GEO satellite system, too, would involve a 0.5s time delay and would be effective only between the latitudes of 50N and 50S, because of L-band deficiencies. The GEO satellites would be more expensive. Using the LEO satellites would result in a 240s time delay and they would also survive an in-orbit failure of one satellite, says Lockheed.

McDougal believes that Inmarsat could provide a GEO service. "It does work. The satellite would be big, possibly with a 7.5m dish with dozens of feeder spot beams, operating at about 3kW," he says. This belief is based on the Inmarsat concept of first defining the terminal requirements, then designing the system. The terminal will operate at an average of 250m/w (milliwatts) because of the health and radiation risk of a higher-power unit.

The advantages of the GEO, says McDougal, are that "...it is a good orbit - tracking and communications control would be easier; the launcher and satellite GEO industry is a mature one, with 30 years experience; and the satellite is a single point in the sky, fixed in one position". Four satellites in the system would be cheaper to launch and operate and would have a longer life.

The GEO disadvantages are the time delay and doubts about it reaching a new technological maturity. McDougal asks: "Are we pushing the envelope on this one?" He admits that there is a "grey area" about how useable the service would be to people in cars and offices.

The LEOs have advantages. Satellites could be based on existing military technologies. They would require less power, be less complicated and provide a good systems link. Satellite constellations are complicated, however, because several satellites must be available to the user at one time and establishing and managing the constellation will not be easy. "Look how long it has taken to get GPS (global-positioning systems) going," says McDougal. The LEOs would require lots of gateways, intersatellite links and multiple stations. They would need in-orbit replenishment and "...they are not actually small, light sats".

The ICO satellites have all the advantages of the LEOs but, being higher up, only two or three would be needed by the users. The LEOs could be moved quickly across the sky, but the higher ICOs would move more slowly. "They would, however, fly closer to the radiation belts," McDougal says.

Compared with other systems developers, Inmarsat seems to be in

a strong position to offer the global service, more quickly and cost-effectively. It has the international structure, powerful operational base, experience and pedigree. Tim Furniss

John C. Bessant, Houston, Texas, USA

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§MSG From: IBMPC --YKTVMV To: IT32730 --VIMVMOA 04/02/93 16:00:13á
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----- SPACE FORUM appended at 14:03:11 on 93/04/02 GMT (by KOHL at HOUVMSCC) --
Subject: I love this forum!(and the News; two bonus days in a row!)

Hey! If we can't poke fun at ourselves, well we'd be the only ones who weren't, so what the... I'd actually like to complement the several of you who apparently thought you were making some veiled attempt at humor, for the sake of April Fool's Day, only to have provided 'Mr. Ron's Redesign Team and Pubmeisters' with additional pertinent, viable and almost surely unconsidered options for inclusion in my team's contribution to our nation's Space Station future. As I go about plotting a disguise so that I can make it past the 'Federal Grants Admission Office' security folks and hopefully get the necessary and sufficient $538,925.78 funding to implement my plan, I'll be sure to keep all my Space cadets informed as to my status. But if/when I should go 'silent running' for any extended period of time, you may want to check the following(in order): Post Office wall, 'America's Most Wanted', Prime Time, 60 Minutes, and lastly The Simpsons! Now, the news.

DISCOVERY PREPS CONTINUE

The countdown for the launch of Discovery on the STS-56 mission is now slated to begin at 4PM (Central) on Saturday. The STS-56 five-member astronaut crew will arrive at the Kennedy Space Center Friday night.

The launch time for Discovery remains set for 12:32AM (Central) Tuesday, April 6th. The launch window for the second flight of the Atmospheric Laboratory for Applications and Science will be almost two and a half hours long.

KRIKALEV TO FLY STS-60

The weekly publication "Space News" is reporting that Sergei Krikalev has been selected to fly as the Russian cosmonaut aboard the STS-60 Space Shuttle mission. Both Krikalev and Vladimir Titov have been training for the flight aboard the orbiter Discovery in November.

It has been rumored that Krikalev would be selected because of he has a better command of the English language than Titov. NASA would like to fly Titov on the STS-63 Mir flyby mission next year. A formal announcement of Krikalev's selection is expected next week.

MSTI UPDATE

The Miniature Seeker Technology Integration satellite, built for $15 Million, is continuing to return data to Earth long after its planned six day lifetime. The satellite uses miniature infrared sensors and has successfully detected solid rocket plumes during its mission.

MSTI's attitude control system failed shortly after launch. Ground controllers improvised a new procedure which put the satellite into a slow spin, allowing for a stable attitude to be maintained. MSTI's observations should continue until the satellite burns up in late-April.

MSTI's design and construction was of equal importance to its mission. The spacecraft is one of NASA's first attempts to design missions which are "faster, better, cheaper".

INTERSTELLAR DUST

Prior to its close flyby with the planet Jupiter, the Ulysses spacecraft detected dust particles which apparently came from outside of the Solar System. The detected dust grains were moving a direction opposite to that of the small particles usually found within the Solar System.

The findings are reported in the latest issue of the journal "Nature". The discovery may allow scientists to begin plans for a spacecraft that could sample the material between the stars without having to travel great distances.

The spacecraft also detected dust grains which appeared with a 28-day cycle. It is believed that this debris came from Jupiter's moon Io. It is possible that the moon's volcanoes produced this dust during one of their many volcanic eruptions, which spew material into orbit around Jupiter.

THE NEW SPACE STATION

Early today, the redesign team led by Dr. Joseph Mets revealed the final plans for the United States' new space station. The station will rotate around a common point, with the two ends of the station connected by a polymolindious tether.

In the adopted redesign plan, the construction of the station will require two Space Shuttle flights. Each flight will loft a large mass, called the Freedom Orbital Orientation Lobe. Each of the lobes will weigh approximately 45,000 pounds and be made mostly of lead.

After the launching of the second lobe, astronauts will attach a tether to each of the large masses and begin rotating the two masses. At this point, the tether should become tight and the new station will be ready for operations. The first lobe will be painted with the letter "E", while the second will be marked with a "D", so the two are not confused by an approaching orbiter.

An anonymous source told this publication,

"The design is really very simple and eloquent. To attach payloads to the new station is really very simple. We'll make clips, looking very much like something you'll find on a clothes line. You attach your payload to the clip and then attach the clip to the Space Station. We expect the clips to be very cheap, only costing perhaps

$200,000 a piece."

"If you are concerned about the microgravity environment, you simply attach your payload towards the center of the rotating station. If you want a centrifuge, attach it at near one of the lobes. We think for man-tended operations, we'll put a chair on each lobe and counterbalance the mass of the astronauts."

One of the first additions to the new Station will be the inclusion of a fiber optic link that will run the length of the tether. Connection points will be provided every 10 feet of the 2,000 foot tether, which will allow numerous pocket calculators to be attached. This will form the basis of the new station's data processing system.

When asked about the redesign, an anonymous NASA Administrator said,

"It is a super-grand vision presented by an empowered team of people who I appointed. This is a vision I've had since I was first able to see. I think we'll have a clothes line, um Station, that someone can be proud of. I need to catch a cab."

This newest design for Freedom is likely to go away, and hopefully far away, after April Fool's Day.

|(Ron's ed. note: this festive, light-hearted, yet potentially closer-to-
|the-truth-than-we'd-care-to-admit was done without any knowledge or
|involvement of your's truly. ;-)

Ron Kohl, Space Station Sys. Eng. FSC Houston

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